Abstract

Disclosed is a method of fabricating nitride semiconductors in a MOCVD reactor. GaN is first deposited on an inner wall of the MOCVD reactor, and a sapphire substrate is loaded into the MOCVD reactor. The sapphire substrate is heated and etching gas is injected into the MOCVD reactor. NH_3 gas is injected into the MOCVD reactor to nitrify the surface of the sapphire substrate. A nitride semiconductor layer is grown on the nitrified sapphire substrate. By surface-reforming the sapphire substrate and then growing the nitride semiconductor layer on the surface-reformed sapphire substrate via MOCVD without formation of a low temperature buffer layer, an excellent nitride semiconductor structure can be realized. In this circumstance, the nitride semiconductor layer for example of GaN can be grown effectively on the surface-treated sapphire substrate because GaN deposition occurs on the sapphire substrate while it is etched.